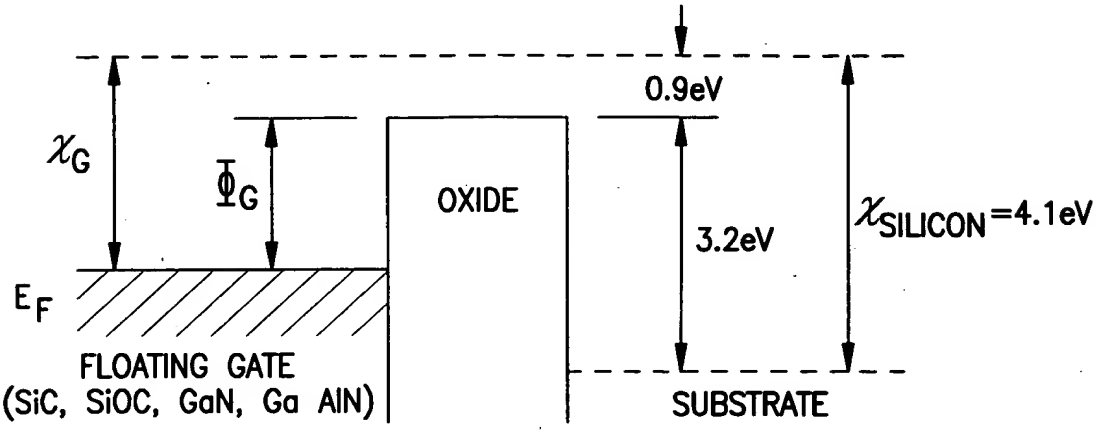


FIG. 1A
(PRIOR ART)

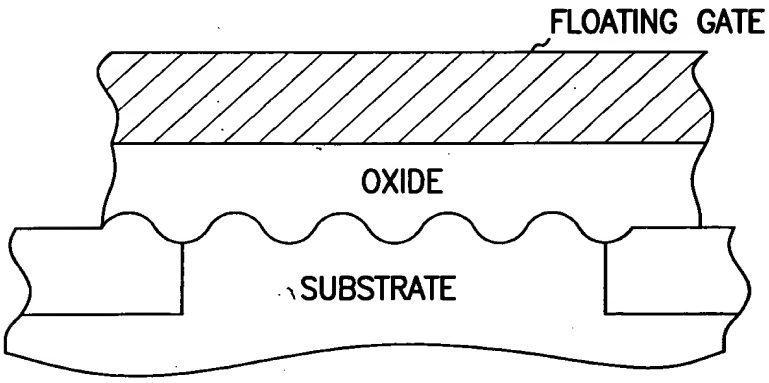


FIG. 1B
(PRIOR ART)

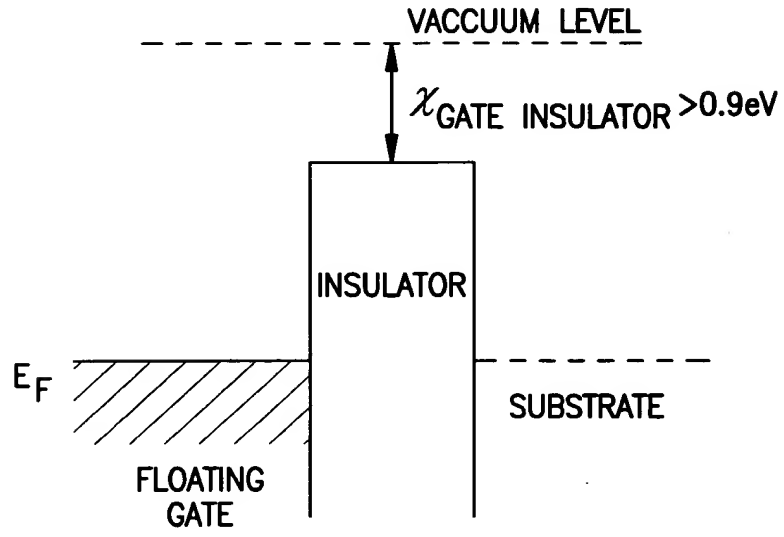


FIG. 1C
(PRIOR ART)

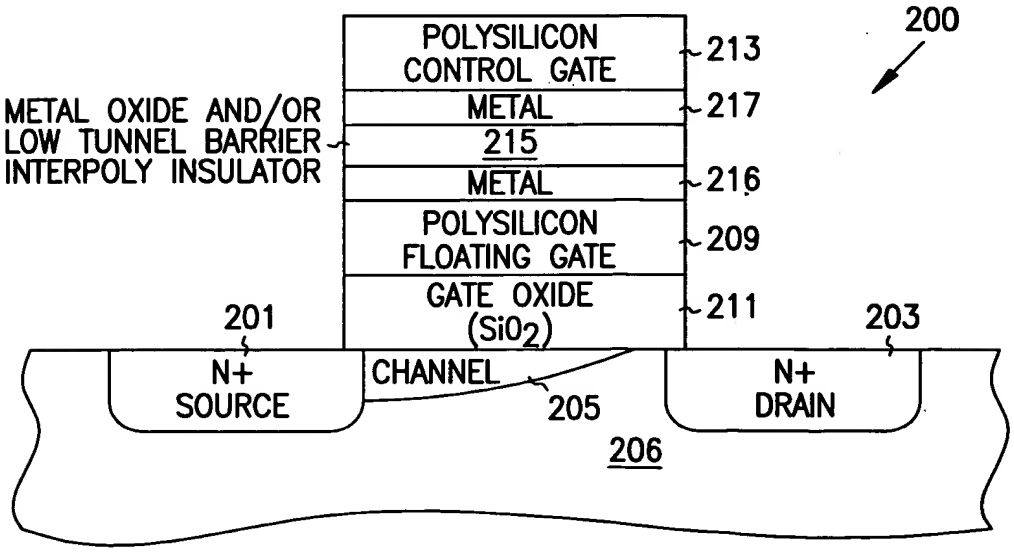


FIG. 2

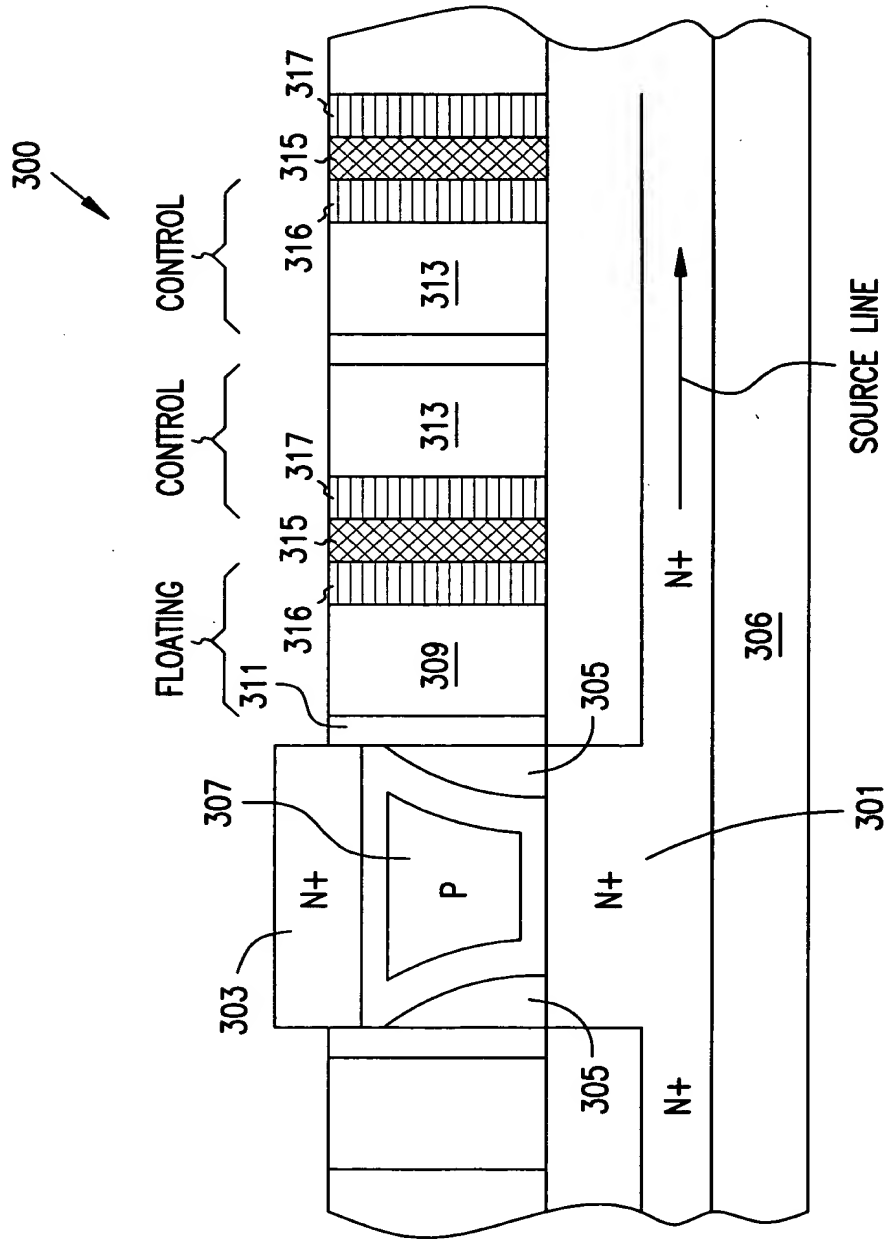

300
CONTROL
CONTROL
FLOATING
317
315
316
313
313
317
315
316
309
311
305
307
303
P
N+
N+
N+
N+
305
306
301
SOURCE LINE

FIG. 3

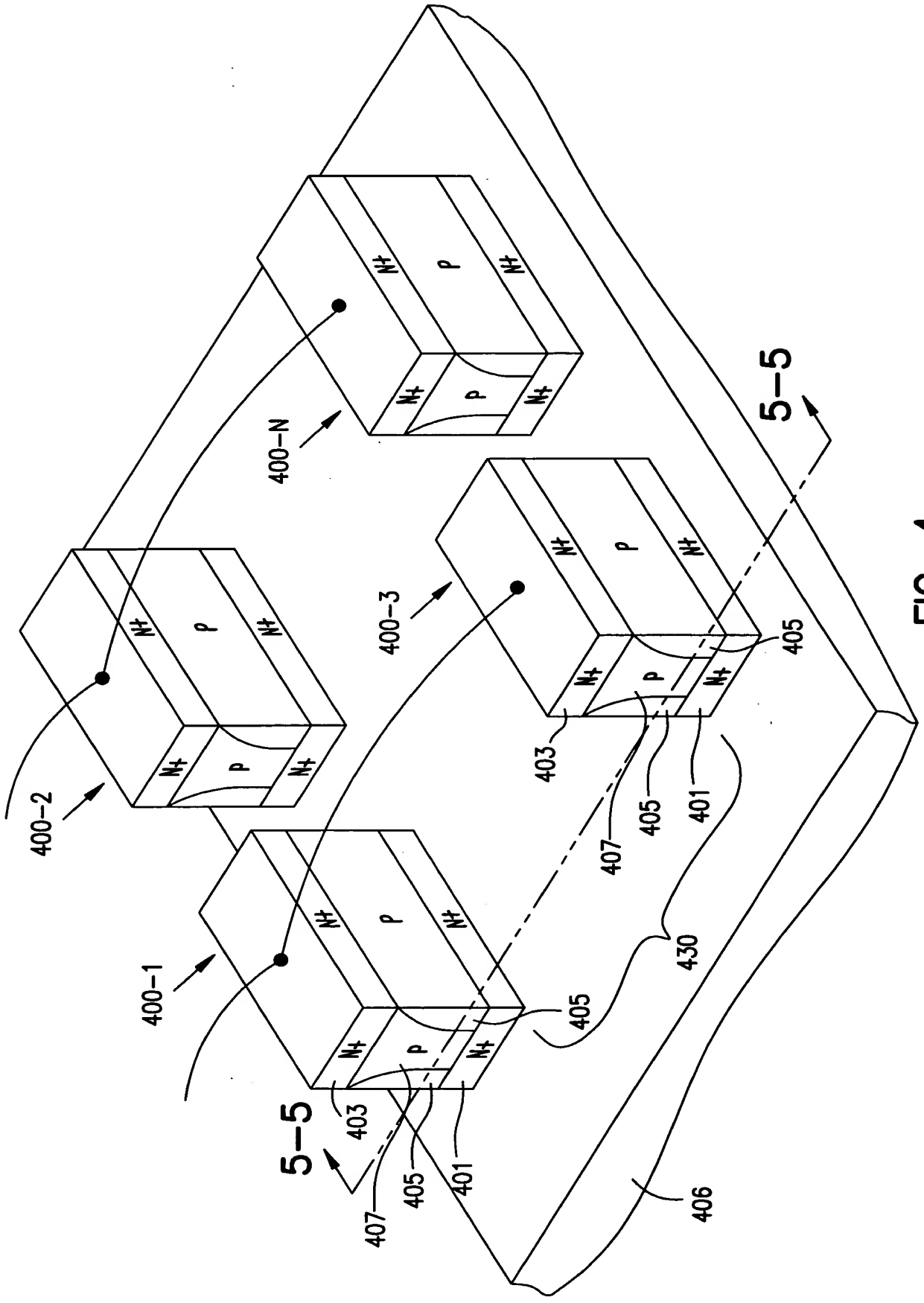


FIG. 4

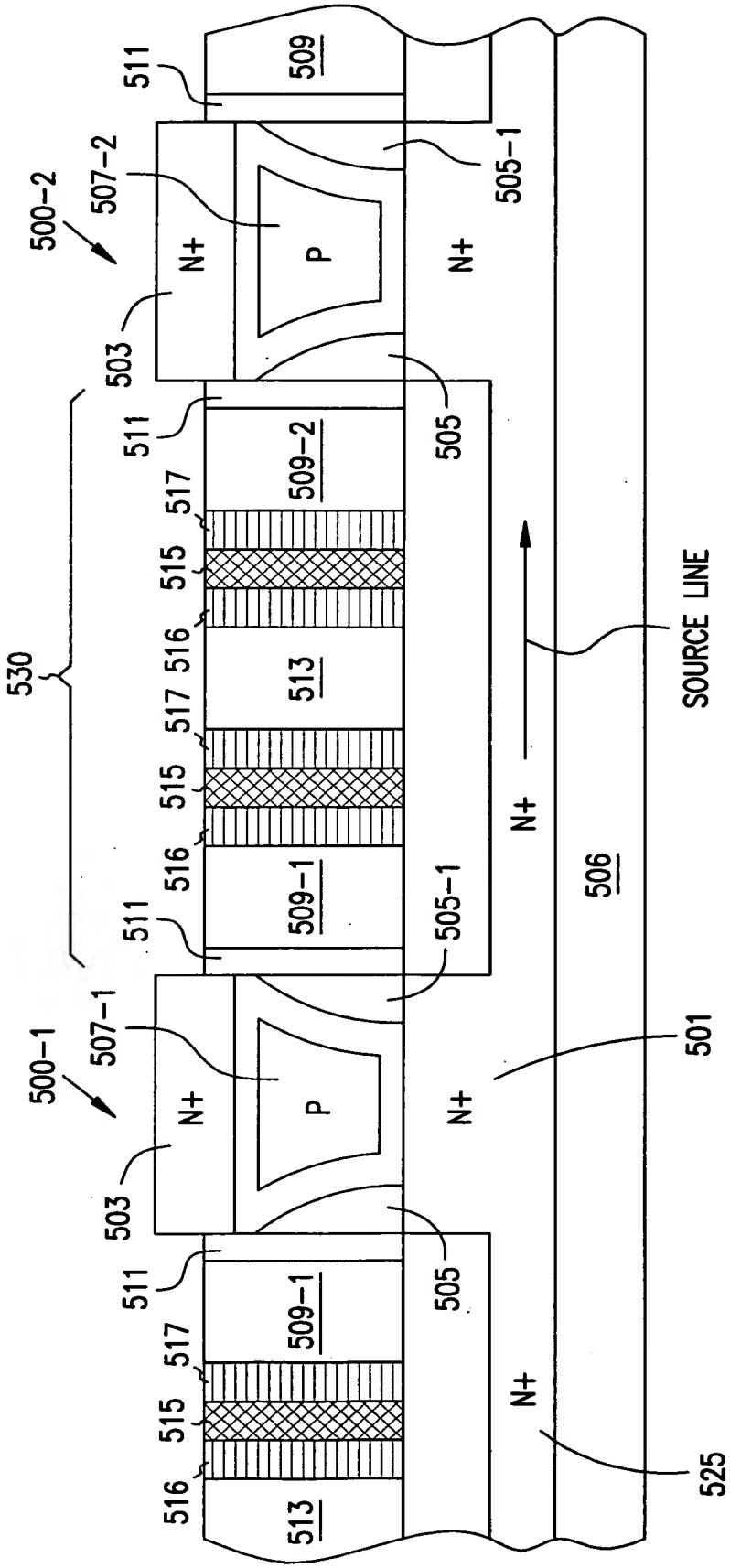

511
509
505-1
500-2
507-2
N+
P
N+
503
505
511
509-2
517
515
516
513
530
SOURCE LINE
N+
506
511
509-1
505-1
500-1
507-1
501
N+
P
N+
503
505
511
509-1
517
515
516
513
N+
525

FIG. 5A

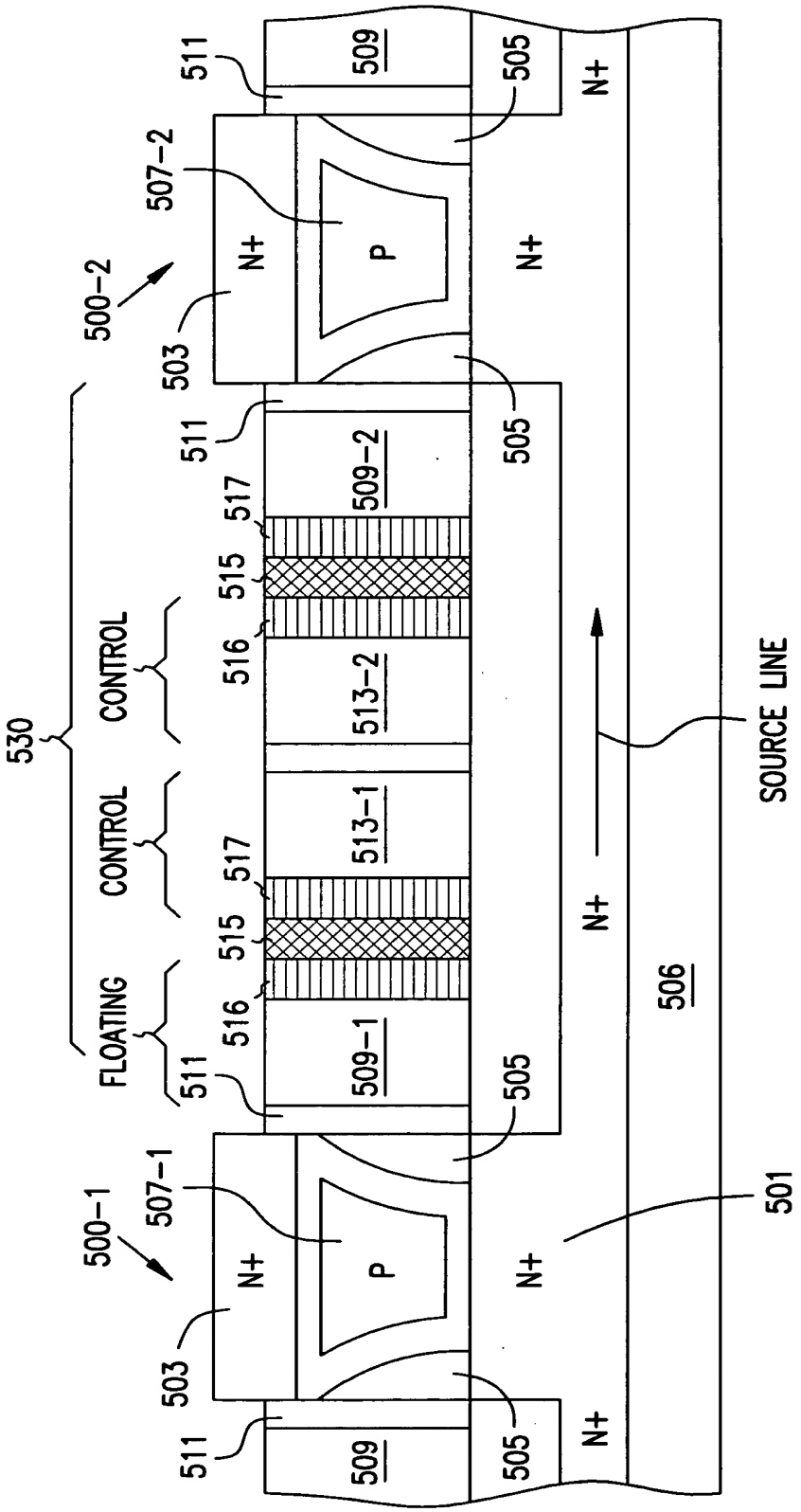


FIG. 5B

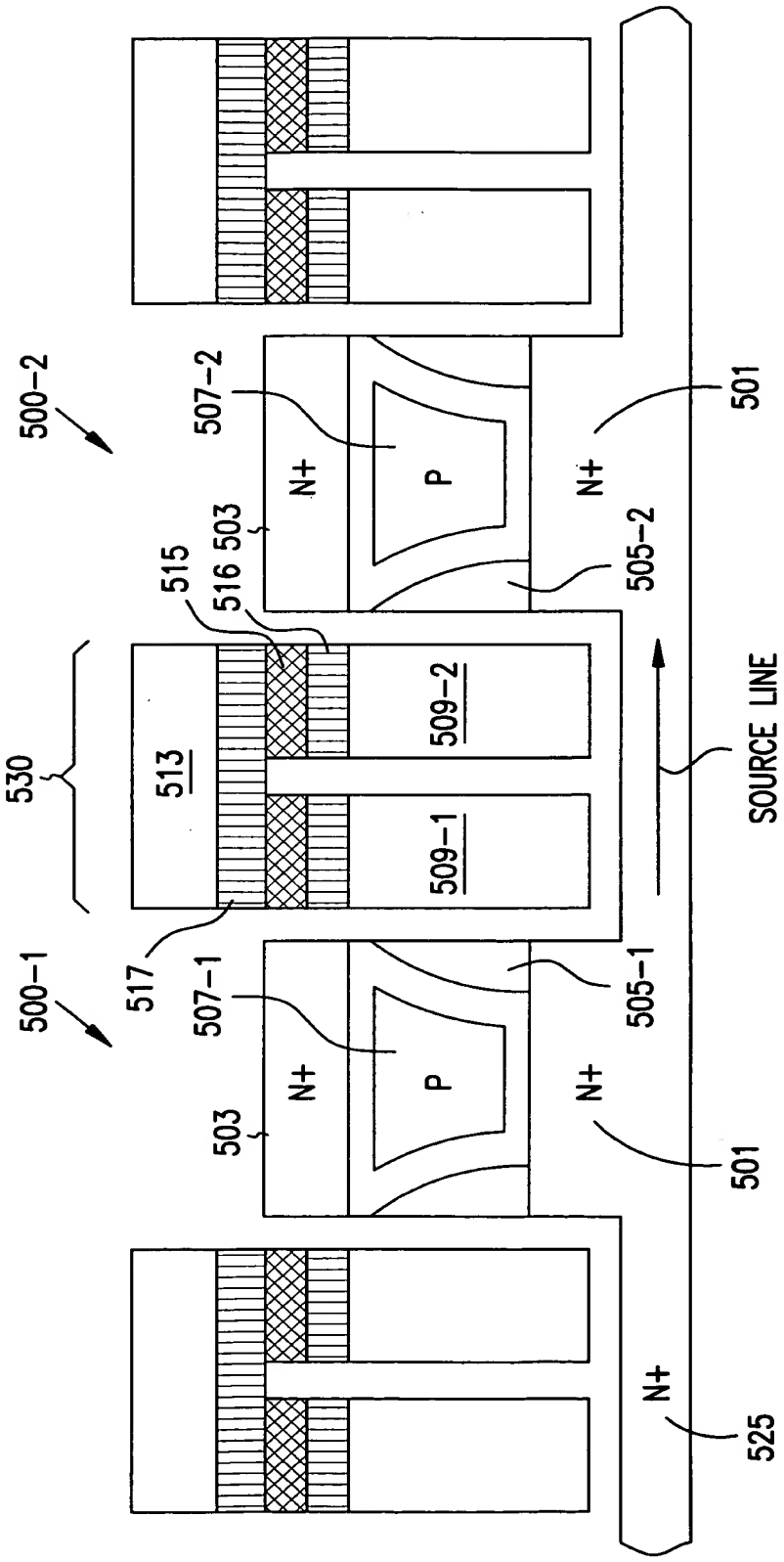

500-2
507-2
N+
P
N+
501
503
505-2
515
516
513
509-2
509-1
530
SOURCE LINE
517
500-1
507-1
505-1
503
N+
P
N+
501
N+
525

FIG. 5C

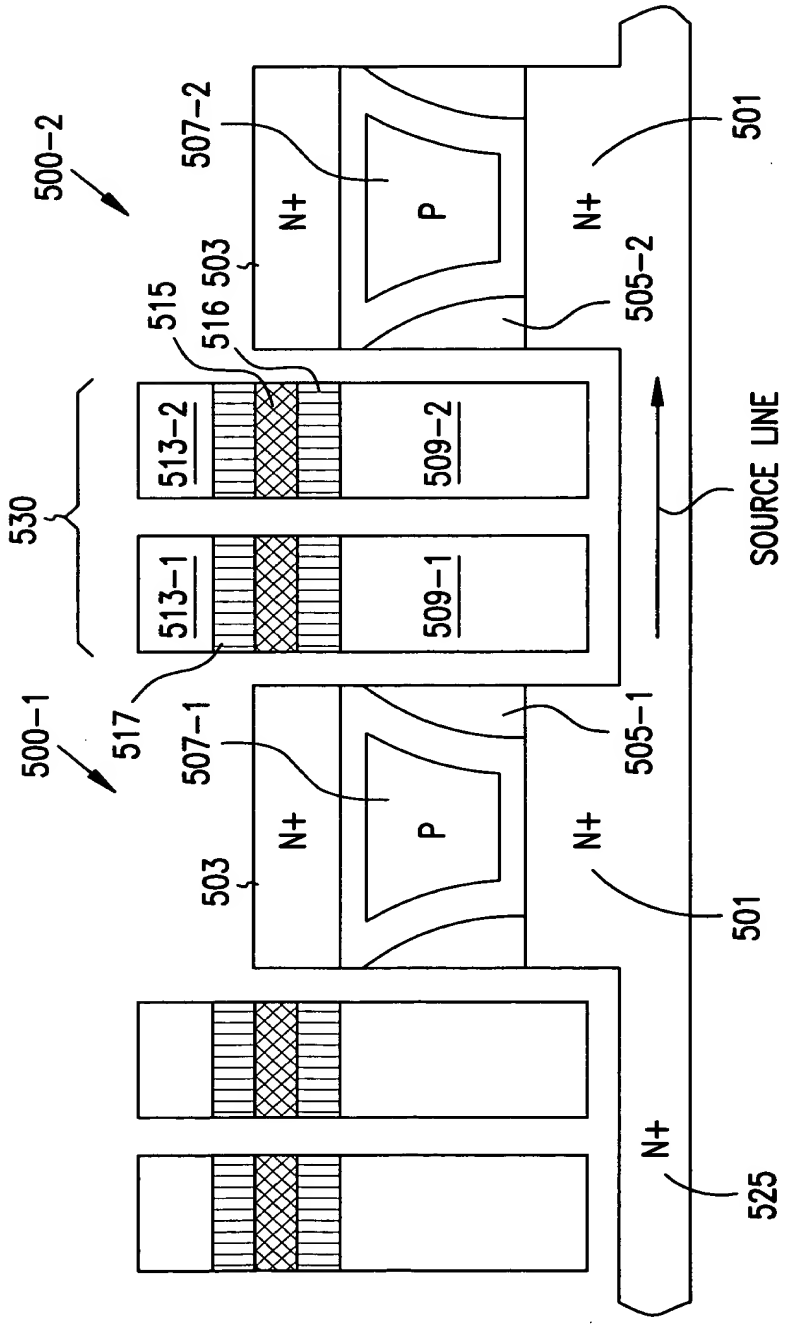

500-2
507-2
N+
P
N+
501
503
515
516
505-2
513-2
509-2
530
513-1
509-1
SOURCE LINE
500-1
517
507-1
505-1
N+
P
N+
503
501
N+
525

FIG. 5D

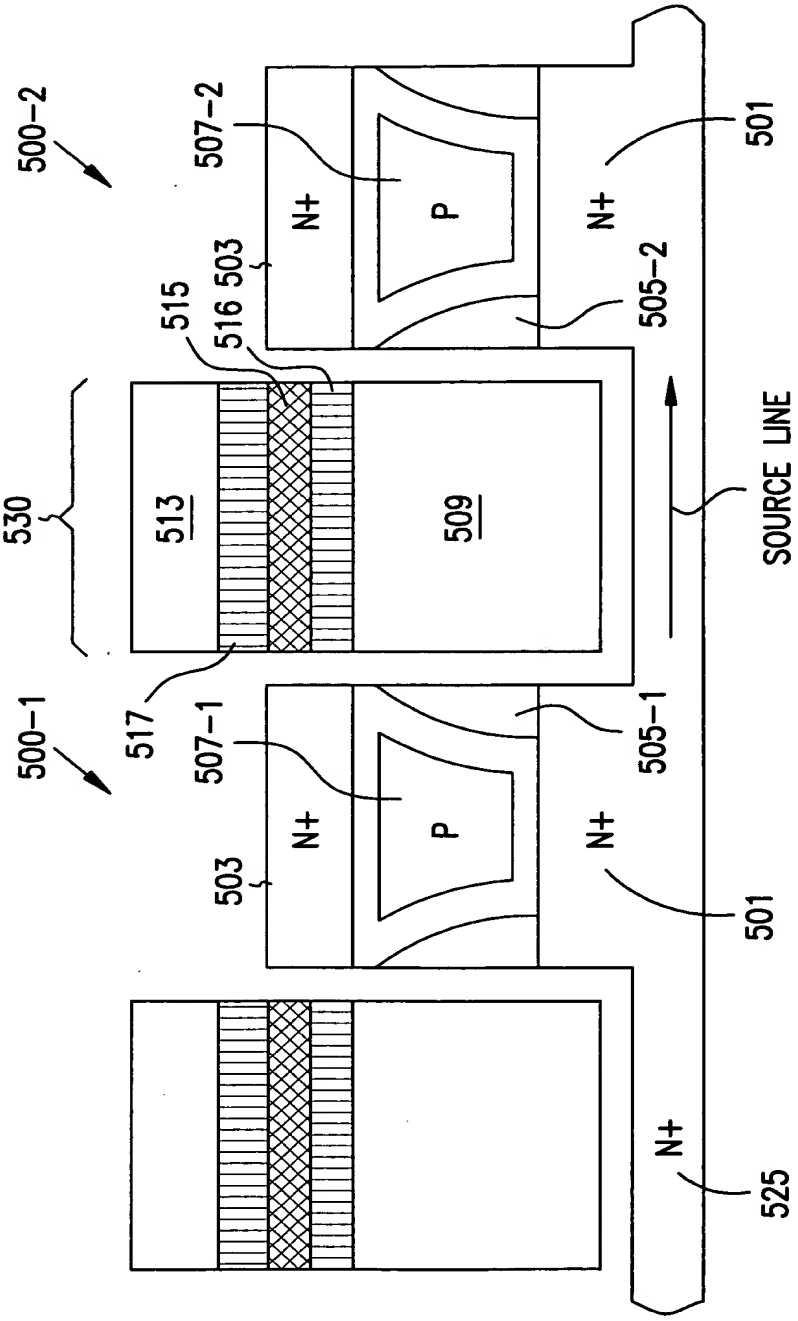

500-2
507-2
N+
P
N+
501
503
515
516
505-2
530
513
509
SOURCE LINE
517
500-1
507-1
505-1
N+
P
N+
503
501
N+
525

FIG. 5E

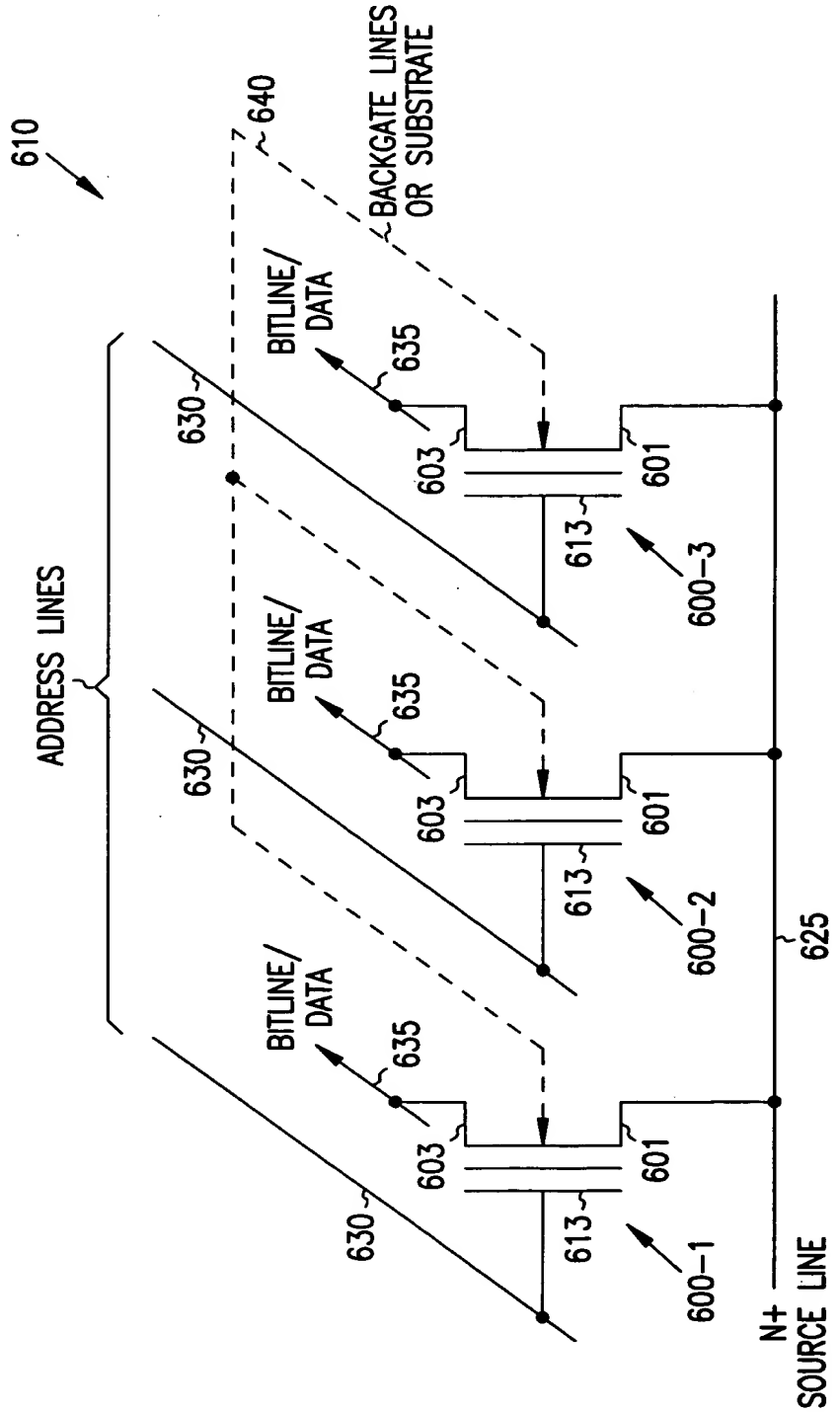

610
640
BACKGATE LINES OR SUBSTRATE
ADDRESS LINES
630
BITLINE/ DATA
635
603
601
613
600-3
600-2
600-1
625
N+ SOURCE LINE

FIG. 6A

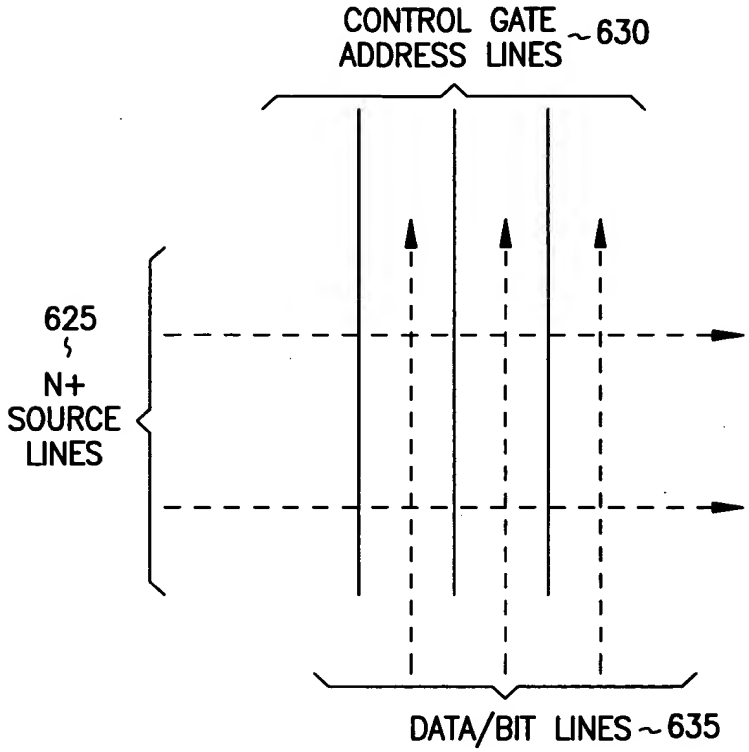


FIG. 6B

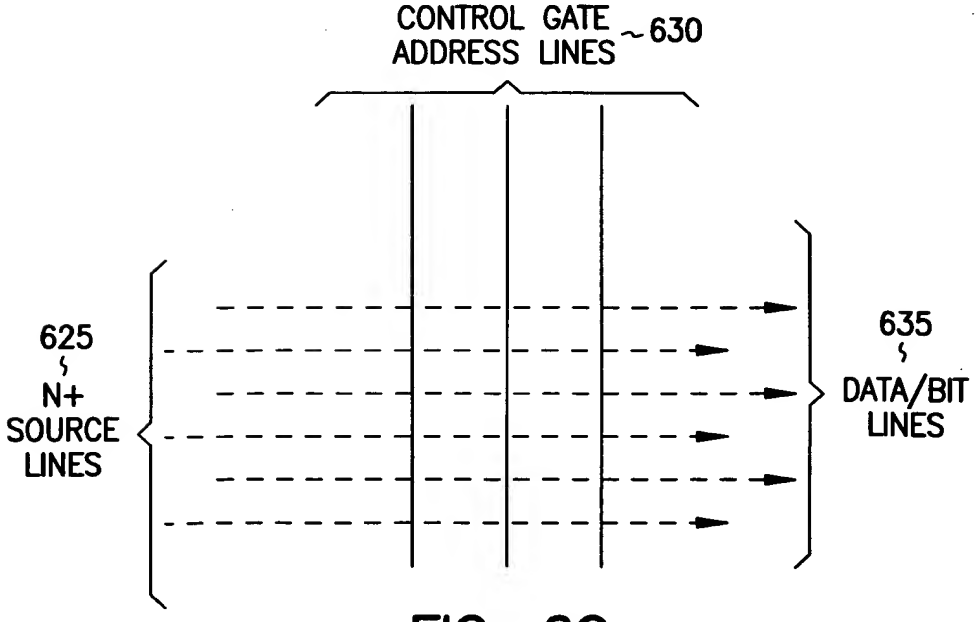


FIG. 6C

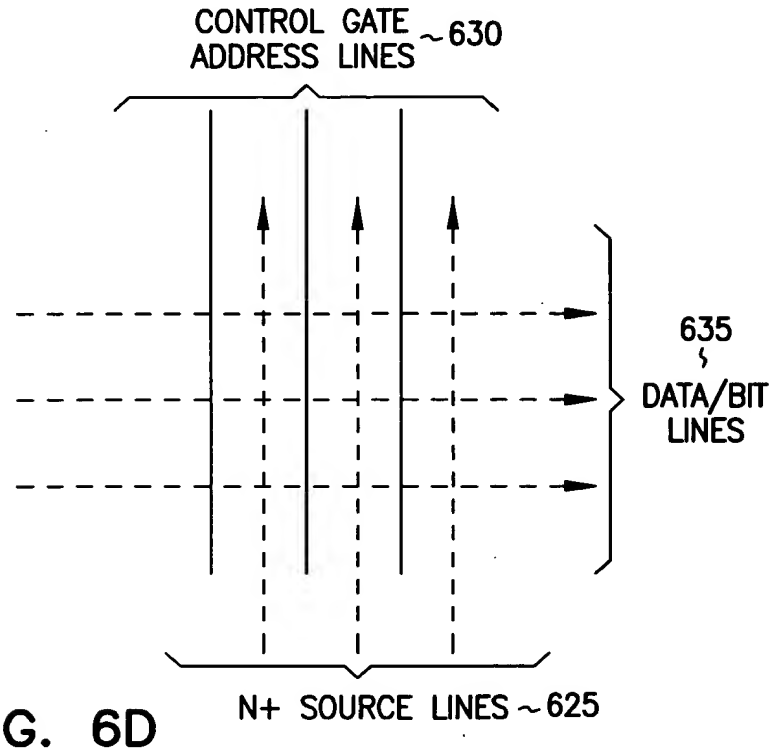

CONTROL GATE ADDRESS LINES
630
635
DATA/BIT LINES
N+ SOURCE LINES
625

FIG. 6D

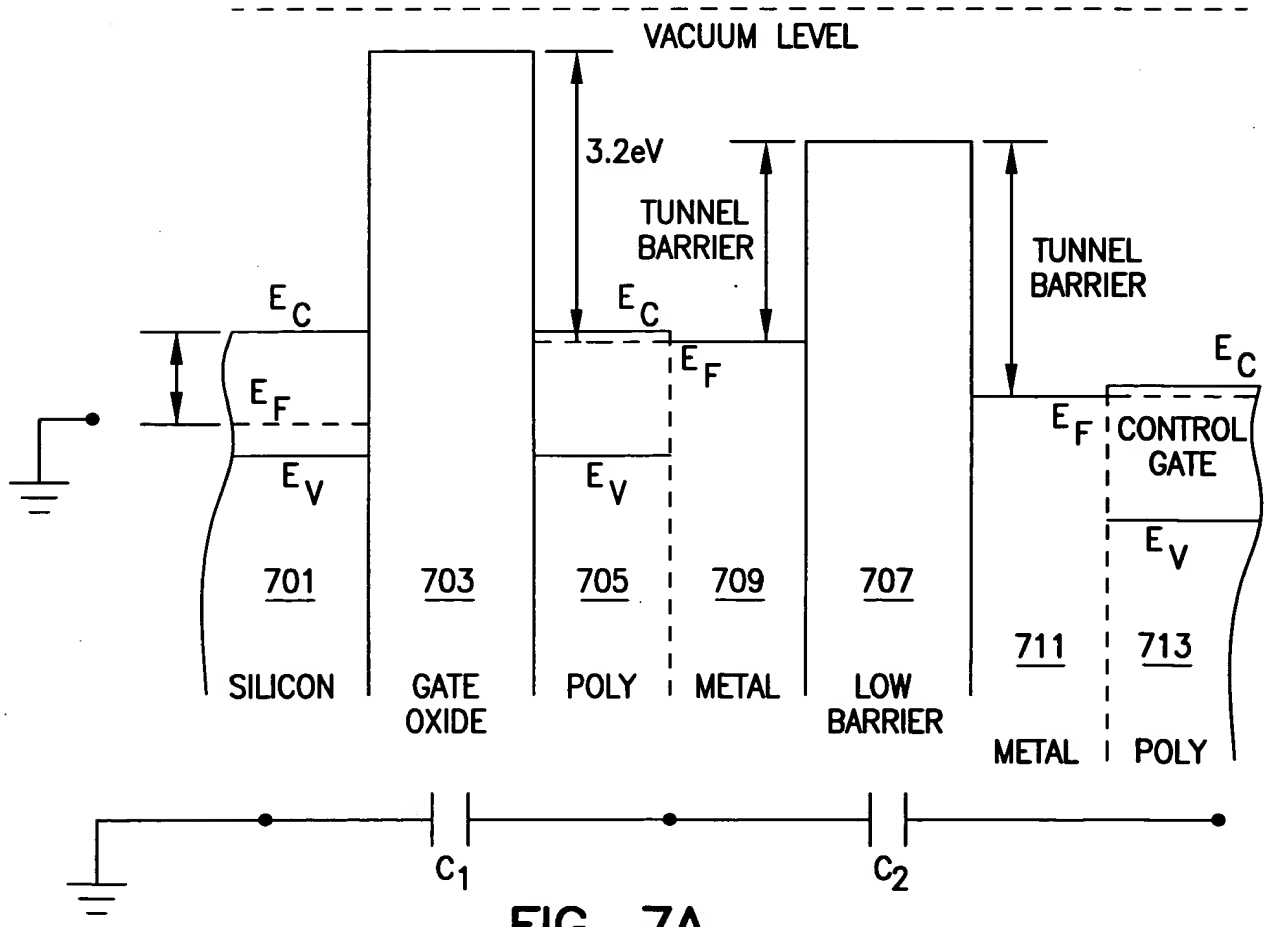
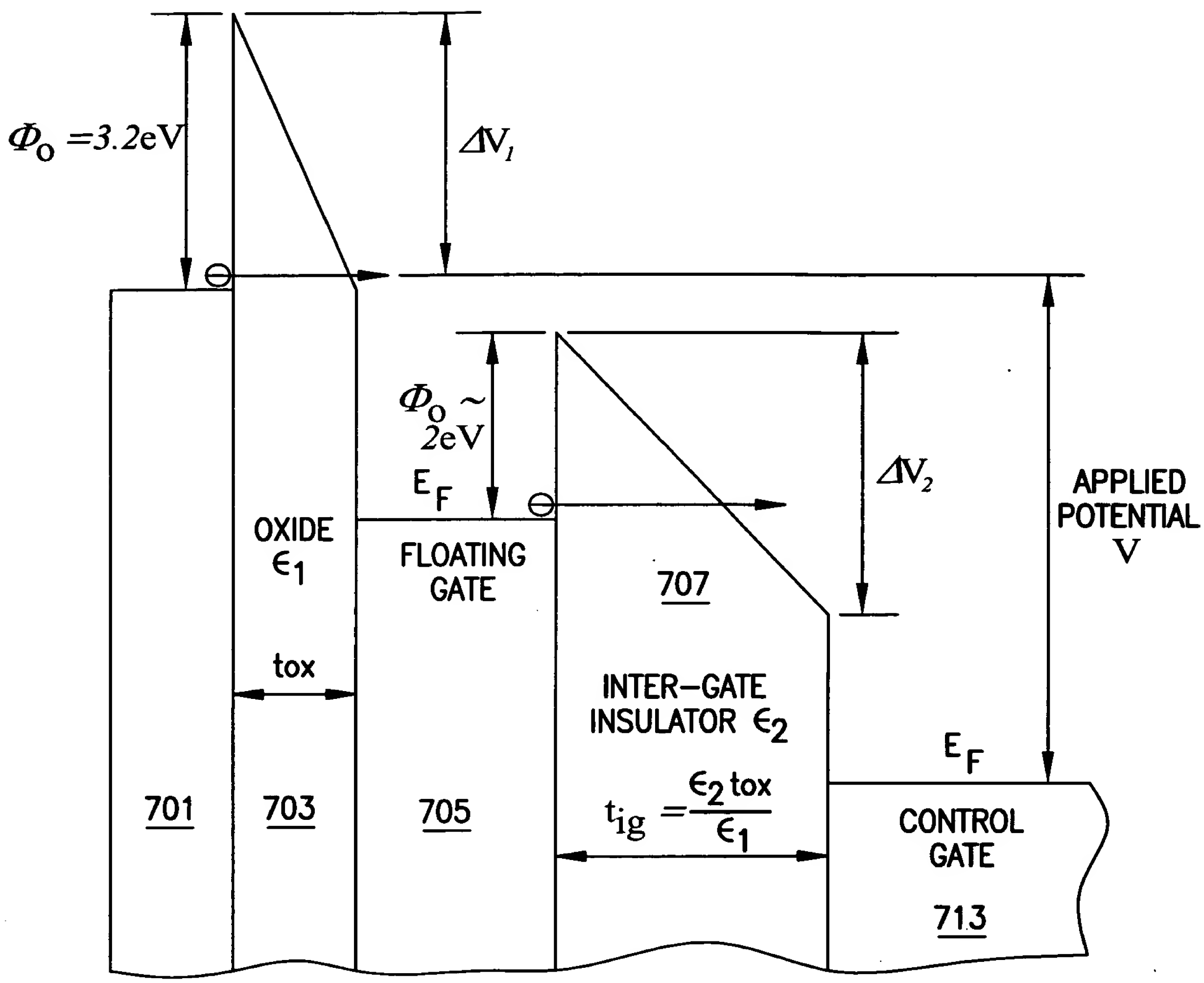

VACUUM LEVEL
3.2eV
TUNNEL BARRIER
TUNNEL BARRIER
E_C
E_F
E_V
CONTROL GATE
701
703
705
709
707
711
713
SILICON
GATE OXIDE
POLY
METAL
LOW BARRIER
METAL
POLY
C_1
C_2

FIG. 7A



$$J = \frac{q^2 E^2}{4\pi h \Phi} e^{-E_0/E} \qquad E_0 = \frac{8\pi}{3} \frac{\sqrt{2m\overset{*}{q}}}{h} \Phi^{3/2}$$

FIG. 7B

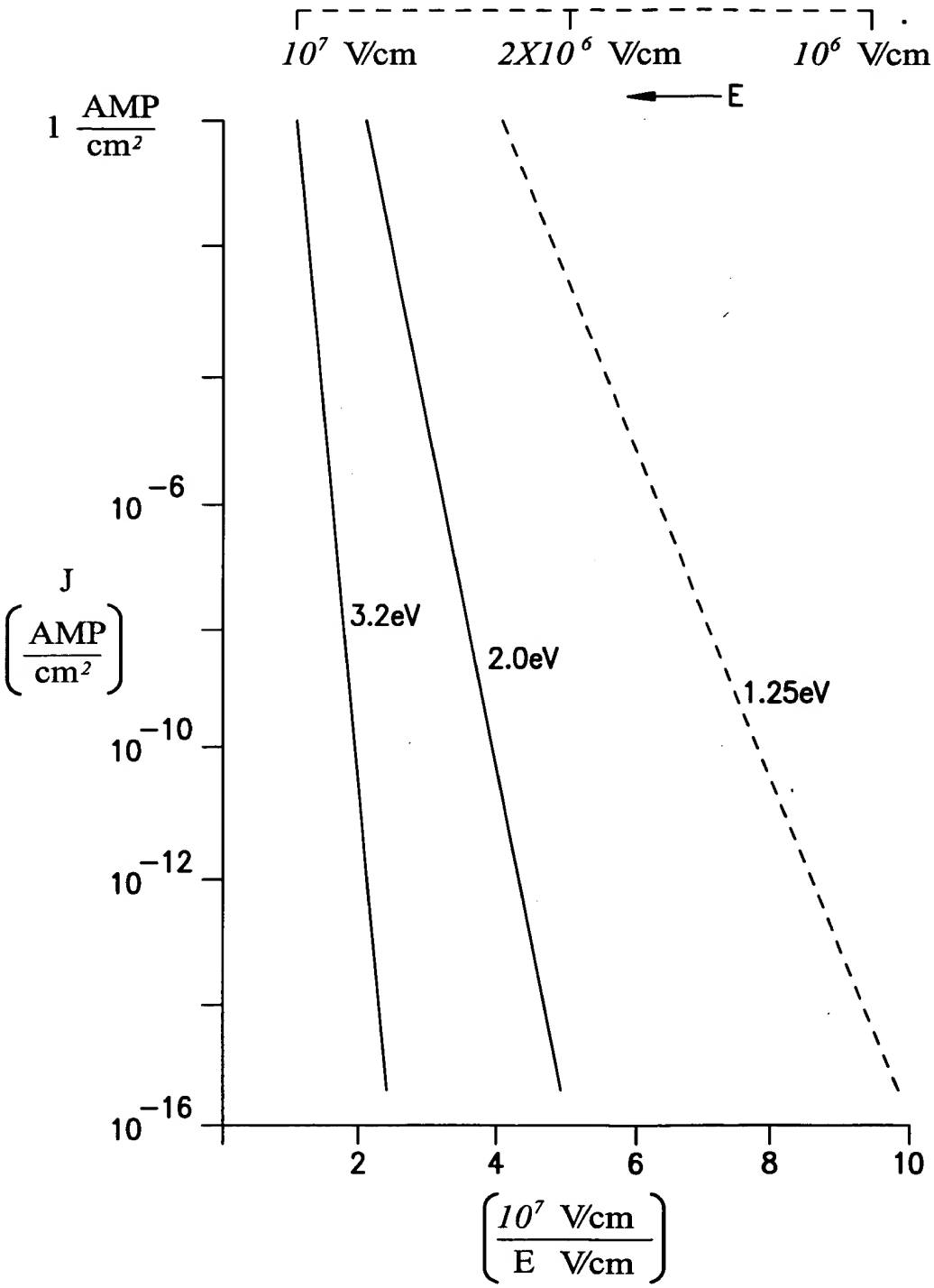

10^7 V/cm
$2X10^6$ V/cm
10^6 V/cm
E
1 AMP/cm²
10^{-6}
J (AMP/cm²)
10^{-10}
10^{-12}
10^{-16}
3.2eV
2.0eV
1.25eV
2
4
6
8
10
(10^7 V/cm / E V/cm)

FIG. 7C

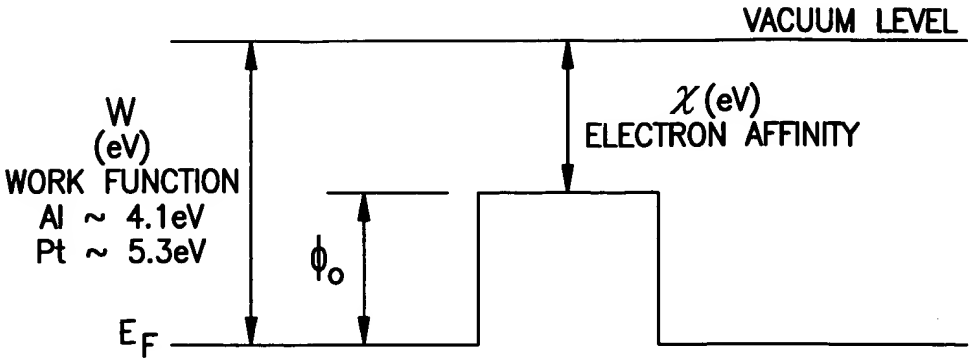


FIG. 8

	E_G	ϵ_r	ϵ_∞	χ	ϕ_o (Pt)	ϕ_o (Al)
Conventional Insulators						
SiO_2	~ 8 eV	4	2.25	0.9 eV		3.2 eV
Si_3N_4	~ 5 eV	7.5	3.8			2.4 eV
Metal Oxides						
Al_2O_3	7.6 eV	9 to 11	3.4			~ 2 eV
NiO						
Transition Metal Oxides						
Ta_2O_5	4.65 - 4.85		4.8	3.3	2.0	0.8 eV
TiO_2	6.8	30 80	7.8	3.9	est. 1.2 eV	
ZrO_2	5 - 7.8	18.5 25	4.8	2.5		1.4
Nb_2O_5	3.1	35-50				
Y_2O_3	6		4.4			2.3
Gd_2O_3						
Perovskite Oxides						
$SrBi_2Ta_2O_3$	4.1		5.3	3.3	2.0	0.8 eV
$SrTiO_3$	3.3		6.1	3.9	1.4	0.2 eV
$PbTiO_3$	3.4		6.25	3.5	1.8	0.6 eV
$PbZrO_3$	3.7		4.8		est. 1.4 eV	0.2 eV

FIG. 9

Metal	Osygen Solub.**, at. %	Oxide Stability Range***	Semicond. Type	Structure Temp.	Transform Temp., °C
Ta	0.8	$TaO_{4.7\text{-}5.0}$	n	Orthorhom.	t.p. 1350
Ti	28	$TiO_{3.82\text{-}5.0}$	n	Rutile	m.p. 1920
Zr	29	$ZrO_{3.66\text{-}5.0}$	n	Monoclinic	t.p. 1170
Nb	2.3	$Nb_2O_{4.86\text{-}5.0}$	n	Monoclinic	m.p. 1495
Al	v. small	$Al_2O_{2.999\text{-}3.0}$	n	Corundum	m.p. 2050
Pb	v. small	PbO	(p)	Orthorhom.	m.p. 885
Si	v. small	SiO_2	n or p	Tetra. (Cyst.)	m.p. 1713

FIG. 10

Metal	Work Function, eV From C-V	From Photoresponse	From Vacuum
Cs			2.2
Eu			2.5
Sm			2.7
Li			2.9
Ca			3.0
Al	4.1	4.1	4.25
Cu	4.7	4.7	4.25
Au	5.0	5.0	4.8
Ag	5.1	5.05	4.3
Ti			4.3
Mo			4.7
Rh			5.1
Ir			5.3
Pt			5.8
Se			5.9

FIG. 11

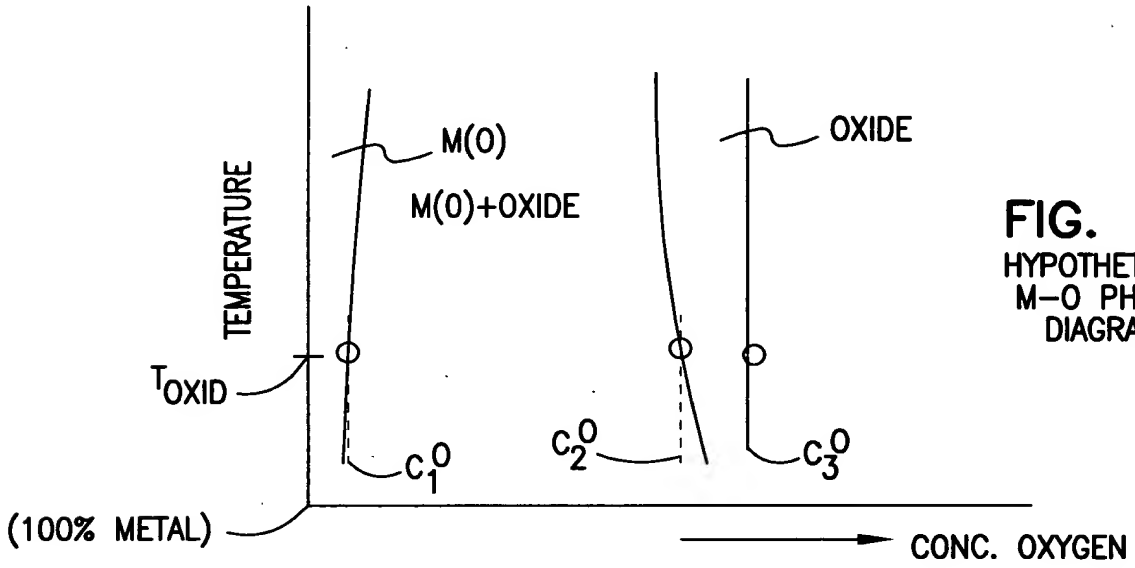


FIG. 12
HYPOTHETICAL M–O PHASE DIAGRAM

COMPOSITIONAL PROFILES

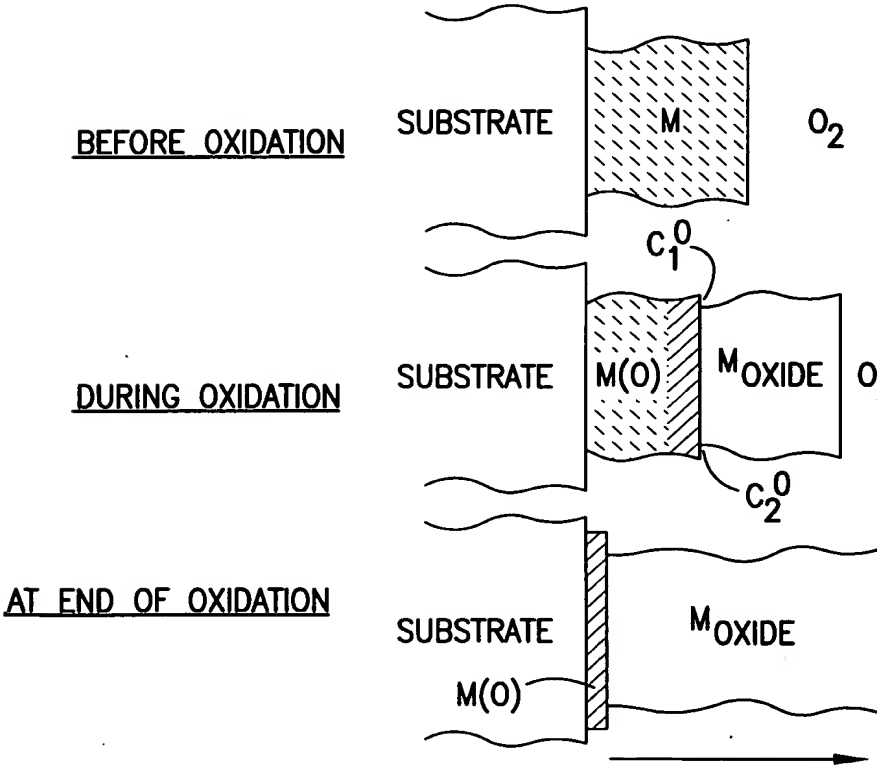


FIG. 13A

FIG. 13B

FIG. 13C

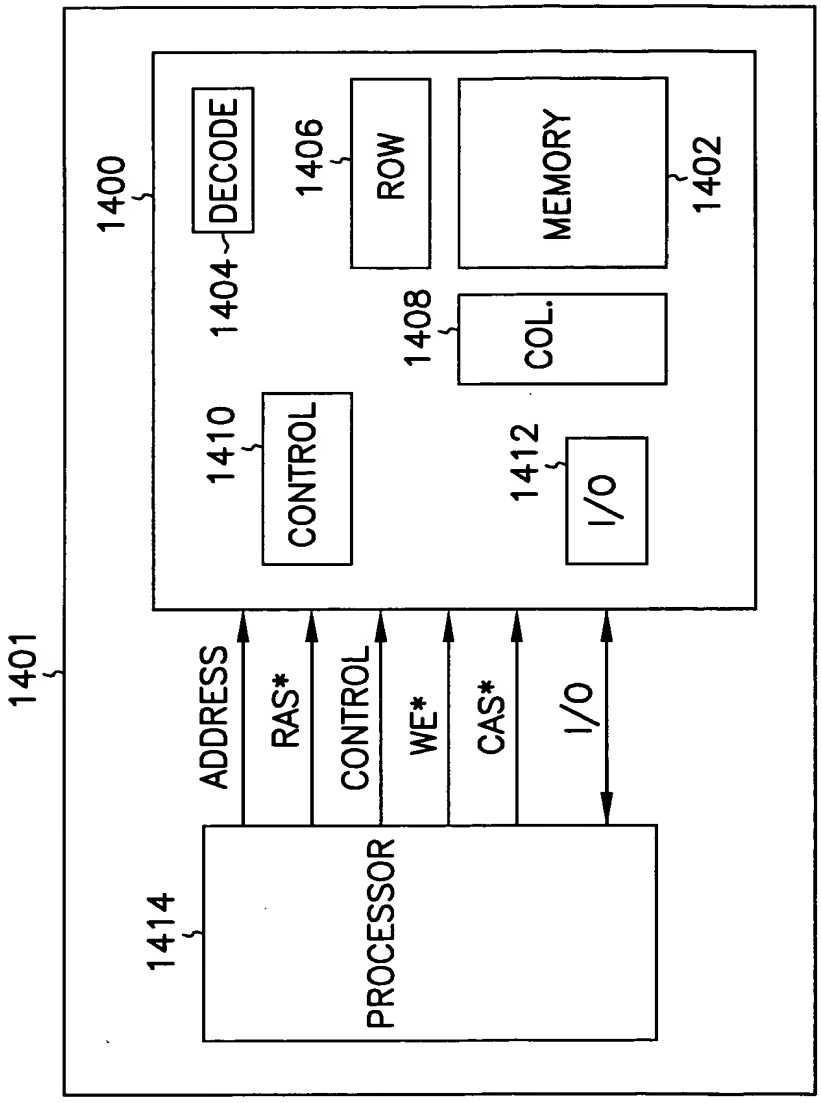

1401
1400
DECODE
1404
1406
ROW
MEMORY
1402
1408
COL.
1410
CONTROL
1412
I/O
ADDRESS
RAS*
CONTROL
WE*
CAS*
I/O
1414
PROCESSOR

FIG. 14